

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

A Replacement Sheet for Fig. 2 is submitted herewith that deletes reference character 12, which is not described in the specification. The amendment of Fig. 2 overcomes the applied objection.

The specification has been amended to overcome the objections applied thereto. No new matter is believed to be introduced by the amendments of the specification.

Claims 1-5 have been canceled in favor of new claims 6-9. New claims 6-9 have been drafted to avoid the 35 USC 101 and 112, second paragraph, rejections applied to claims 2-5. Support for the subject matter of new claims 6-9 is provided at least in original claims 2-5, thus the rejection applied to claim 1 is obviated.

Claims 2-5 were rejected, under 35 USC §103(a), as being unpatentable over Barthe et al. (US 6,213,948) in view of Lino et al. (US 6,441,534). To the extent these rejections may be deemed applicable to new claims 6-9, the Applicants respectfully traverse based on the points set forth below.

Claim 6 defines an ultrasonic diagnostic device that drives an ultrasonic motor of the device at its highest speed when the accumulated driving time of the motor at its lowest speed has been determined to exceed a predetermined period of time.

The Office Action proposes that Barthe discloses an ultrasonic diagnostic device having a motor, and Lino discloses an ultrasonic motor. The office action alleges that a skilled artisan would find motivation to modify Barthe's device to incorporate Lino's ultrasonic motor so as to reduce the size of the motor in the modified device and improve the precision of the motor's movement (see Office Action section 12, lines 1-5).

However, the Applicants respectfully submit that the combined teachings of Barthe and Lino do not suggest the claimed feature of driving an ultrasonic motor of an ultrasonic diagnostic device at its highest speed when the accumulated driving time of the motor at its lowest speed has been determined to exceed a predetermined period of time. And the Office Action does not propose otherwise.

Accordingly, the Applicants respectfully submit that Barthe and Lino, considered individually or in combination, do not render obvious the subject matter defined by claim 6. Claims 7-9 similarly recite the above-mentioned feature distinguishing claim

6 from the applied references. Therefore, allowance of claims 6-9 is warranted.

To promote a better understanding of the differences between the claimed subject matter and the applied references, the Applicants provide the following additional remarks.

The present invention has been made through the following background. When a conventional ultrasonic motor is driven for a long period of time at a relatively low speed, roughness develops on the surface of the pectinate stator at the side in contact with the rotor (see specification page 2, line 24, through page 3, line 3). Also, fine particles of the stator are transferred to the contact surface of the rotor and these particles inhibit stable operation, thereby shortening the motor life (see page 3, lines 3-6). Applicants discovered that when such an ultrasonic motor is driven at a higher-than-normal speed, such as 40 rpm, the roughness on the surface of the pectinate stator is mitigated, such that the stator surface is restored to its original state and normal rotation of the stator is regained.

In light of the above, Applicants' claimed ultrasonic diagnostic device provides a speed control section that drives an ultrasonic motor at two different speeds. A high-speed rotation instructing section drives the ultrasonic motor at a relatively high speed, after a determination is made that the motor has been

driven at a relatively low speed for a prescribed period of time. The high-speed operation is triggered when a user is not expected to be operating the diagnostic device.

To trigger the high-speed operation, claim 6 recites making a determination whether or not the accumulated low-speed driving time of the ultrasonic motor exceeds a predetermined period of time when a power switch of the ultrasonic diagnostic device has been turned OFF. Similarly, claim 7 recites making the determination when a screen saver of a monitor for displaying three-dimensional images produced by the ultrasonic diagnostic device has been turned ON. Claim 8 recites making the determination when a power switch of the ultrasonic diagnostic device has been turned ON for the first time within one day. Claim 9 triggers the high-speed motor operation when the motor's accumulated low-speed driving time exceeds the predetermined period of time and a low-speed driving instruction is generated.

Thus, the ultrasonic diagnostic device defined by claims 6-9 provides improved stability and operational life without affecting a user's diagnostic use of the device.

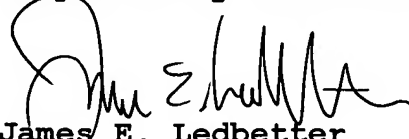
Barthe and Lino, alone or together, do not teach or suggest the above-described features of claims 6-9 that trigger the high-speed operation of an ultrasonic motor for the purpose of restoring functionality diminished by its normal low-speed

operation. Each of claims 6-9 recites: (1) a timer for measuring an accumulated driving time of a motor at its lowest speed and (2) a determining section that determines whether or not the accumulated driving time exceeds a predetermined period of time. This combination of features and the above-described triggering operation for making the determinations are not suggested by the teachings of Barthe and Lino, taken alone or in combination. Thus, it is submitted that the claimed invention patentably distinguishes over the prior art.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,


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